

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claims 1-48 (canceled)

1 Claim 49 (currently amended): A method of desorbing a macromolecular analyte
2 from a probe surface comprising the steps of:

3 a) providing a probe that is removably insertable into a mass spectrometer,
4 the probe having a surface for presenting the macromolecular analyte to at least one single
5 energy source that emits energy capable of desorbing and ionizing the macromolecular analyte
6 from the probe for analyte detection, wherein at least the surface comprises a non-metallic-
7 material selected from the group consisting of ~~glass, ceramic,~~ polystyrene, polypropylene,
8 polyethylene, polycarbonate, nylon, starch, agarose, and dextran, wherein the probe for
9 presenting the analyte is not associated with a separate sample holder; and

10 b) exposing the macromolecular analyte on the probe surface to energy from
11 at least one single energy source, whereby the macromolecular analyte is desorbed and ionized.

1 Claim 50 (previously presented): The method of claim 49 wherein the energy
2 source emits laser light that desorbs and ionizes the macromolecular analyte to produce an ion.

1 Claim 51 (previously presented): The method of claim 50 further comprising
2 after step (b) the steps of:

3 c) modifying the macromolecular analyte chemically or enzymatically while
4 deposited on the probe surface; and

5 d) repeating step (b).

1 Claim 52 (previously presented): The method of claim 50 wherein the probe
2 surface comprises an array of locations, each location having at least one macromolecular

3 analyte deposited thereon; and step (b) comprises desorbing and ionizing a first macromolecular
4 analyte from a first location in the array;
5 and wherein the method further comprises the step of (c) desorbing and ionizing a
6 second macromolecular analyte, from a second location in the array.

1 Claim 53 (previously presented): The method of claim 50 further comprising
2 before step (b) the step of modifying the macromolecular analyte chemically or enzymatically
3 while deposited on the probe surface.

Claims 54-55 (canceled)

1 Claim 56 (previously presented): The method of claim 50 wherein the non-
2 metallic material is substantially porous.

1 Claim 57 (previously presented): The method of claim 50 wherein the non-
2 metallic material is substantially non-porous.

Claims 58-62 (canceled)

1 Claim 63 (previously presented): The method of claim 50 wherein the
2 macromolecular analyte comprises a protein or a peptide.

1 Claim 64 (currently amended): A system for detecting ~~an~~ a macromolecular
2 analyte comprising:
3 a removably insertable probe having a surface for presenting the macromolecular
4 analyte to at least one single energy source that emits energy capable of desorbing and ionizing
5 the macromolecular analyte from the probe, wherein at least the surface comprises a non-metallic
6 material selected from the group consisting of ~~glass, ceramic,~~ polystyrene, polypropylene,
7 polyethylene, polycarbonate, nylon, starch, agarose, and dextran;
8 at least one single energy source that directs energy to the probe surface for
9 desorbing and ionizing the macromolecular analyte, wherein the probe for presenting the analyte
10 is not associated with a separate sample holder; and

11 a detector in communication with the probe surface that detects the desorbed
12 macromolecular analyte.

1 Claim 65 (previously presented): The system of claim 64 which is a laser
2 desorption mass spectrometer wherein:
3 the energy source emits laser light that desorbs and ionizes the macromolecular
4 analyte to produce an ion,
5 the system further comprises means for accelerating the ion to the detector,
6 the detector detects the ion, and
7 the system further comprises means for determining the mass of the ion.

1 Claim 66 (previously presented): The system of claim 64 wherein the energy
2 source emits laser light.

1 Claim 67 (previously presented): The system of claim 64 wherein the energy
2 source emits plasma energy or fast atoms.

1 Claim 68 (previously presented): The system of claim 64 wherein the energy
2 source emits energy of a variety of wavelengths.

1 Claim 69 (previously presented): The system of claim 64 wherein the detector
2 detects ions.

1 Claim 70 (previously presented): The system of claim 64 wherein the detector
2 detects radioactivity or light.

1 Claim 71 (previously presented): The system of claim 64 further comprising
2 means for accelerating the desorbed macromolecular analyte to the detector.

Claims 72-74 (canceled)

1 Claim 75 (previously presented): The system of claim 65 wherein the non-
2 metallic material is substantially porous.

1 Claim 76 (previously presented): The system of claim 65 wherein the non-
2 metallic material is substantially non-porous.

Claims 77-81 (canceled)

1 Claim 82 (previously presented): The system of claim 75 wherein the porous
2 material comprises sponge-like, polymeric, high surface areas.

Claims 83-85 (canceled)

1 Claim 86 (currently amended): A method for detecting a macromolecular analyte
2 comprising the steps of:

3 a) providing a system comprising:

4 (1) a removably insertable probe having a surface for presenting the
5 macromolecular analyte to at least one single energy source that emits energy capable of
6 desorbing and ionizing the macromolecular analyte from the probe, wherein at least the surface
7 comprises a non-metallic material selected from the group consisting of ~~glass, ceramic,~~
8 polystyrene, polypropylene, polyethylene, polycarbonate, nylon, starch, agarose, and dextran,
9 wherein the macromolecular analyte is presented on the probe surface, wherein the probe for
10 presenting the analyte is not associated with a separate sample holder,

11 (2) at least one single energy source that directs energy to the probe
12 surface for desorbing and ionizing the macromolecular analyte; and

13 (3) a detector in communication with the probe surface that detects the
14 desorbed and ionized macromolecular analyte;

15 b) desorbing and ionizing at least a portion of the macromolecular analyte
16 from the surface by exposing the macromolecular analyte to energy from at least one single
17 energy source; and

18 c) detecting the desorbed and ionized macromolecular analyte with the
19 detector.

1 Claim 87 (previously presented): The method of claim 86 wherein the system is
2 a laser desorption mass spectrometer wherein the energy source emits laser light that desorbs and
3 ionizes the macromolecular analyte to produce an ion, the detector detects the ion and the system
4 further comprises means for accelerating the ion to the detector, and the method further
5 comprises determining the mass of the ion.

1 Claim 88 (previously presented): The method of claim 87 further comprising
2 before step (b) the step of modifying the macromolecular analyte chemically or enzymatically
3 while deposited on the probe surface.

1 Claim 89 (previously presented): The method of claim 87 further comprising
2 after step (c) the steps of:
3 d) modifying the macromolecular analyte chemically or enzymatically while
4 deposited on the probe surface; and
5 e) repeating steps b) and c).

1 Claim 90 (previously presented): The method of claim 87 wherein the probe
2 surface comprises an array of locations, each location having at least one macromolecular
3 analyte deposited thereon; and step (b) comprises desorbing and ionizing a first macromolecular
4 analyte from a first location in the array;
5 and wherein the method further comprises the step of:
6 d) desorbing and ionizing a second macromolecular analyte from a second
7 location in the array; and
8 e) detecting the desorbed and ionized second macromolecular analyte with
9 the detector.

1 Claim 91 (previously presented): The method of claim 87 further comprising the
2 step of displaying the determined mass of the macromolecular analyte.

Claims 92-93 (canceled)

1 Claim 94 (previously presented): The method of claim 87 wherein the non-
2 metallic material is substantially porous.

1 Claim 95 (previously presented): The method of claim 87 wherein the non-
2 metallic material is substantially non-porous.

Claims 96-100 (canceled)

1 Claim 101 (previously presented): The method of claim 87 wherein the
2 macromolecular analyte comprises a protein or a peptide.

Claims 102-104 (canceled)

1 Claim 105 (previously presented): The method of claim 50, wherein the
2 macromolecular analyte is a biomolecule.

1 Claim 106 (previously presented): The method of claim 50, wherein the
2 macromolecular analyte is a biomolecule from an undifferentiated sample.

1 Claim 107 (previously presented): The method of claim 50, wherein the
2 macromolecular analyte is a nucleic acid.

1 Claim 108 (previously presented): The system of claim 65, wherein the
2 macromolecular analyte is a biomolecule.

1 Claim 109 (previously presented): The system of claim 65, wherein the
2 macromolecular analyte is a biomolecule from an undifferentiated sample.

1 Claim 110 (previously presented): The system of claim 65, wherein the
2 macromolecular analyte is a protein or a peptide.

1 Claim 111 (previously presented): The method of claim 87, wherein the
2 macromolecular analyte is a biomolecule.

1 Claim 112 (previously presented): The method of claim 87, wherein the
2 macromolecular analyte is a biomolecule from an undifferentiated sample.

1 Claim 113 (previously presented): The method of claim 87, wherein the
2 macromolecular analyte is a protein or a peptide.

Claims 114-119 (canceled)

1 Claim 120 (previously presented): The method of claim 50, wherein the
2 macromolecular analyte is a carbohydrate.

1 Claim 121 (previously presented): The system of claim 65, wherein the
2 macromolecular analyte is a nucleic acid.

1 Claim 122 (previously presented): The system of claim 65, wherein the
2 macromolecular analyte is a carbohydrate.

1 Claim 123 (previously presented): The method of claim 87, wherein the
2 macromolecular analyte is a nucleic acid.

1 Claim 124 (previously presented): The method of claim 87, wherein the
2 macromolecular analyte is a carbohydrate.

1 Claim 125 (currently amended): The method of ~~claim 49~~ any of claims 49-53,
2 56, 57, 63, 105-107, 120 or 130-134 further comprising the macromolecular analyte associated
3 with a matrix material for promoting desorption and ionization of the macromolecular analyte on
4 the surface.

1 Claim 126 (currently amended): The method of ~~claim 64~~ any of claims 64-71,
2 75, 76, 82, 108-110, 121, 122 or 137-141 further comprising the macromolecular analyte
3 associated with a matrix material for promoting desorption and ionization of the macromolecular
4 analyte on the surface.

1 Claim 127 (currently amended): The method of ~~claim 86~~ any of claims 86-91,
2 94, 95, 101, 111-113, 123, 124 or 144-148 further comprising the macromolecular analyte
3 associated with a matrix material for promoting desorption and ionization of the macromolecular
4 analyte on the surface.

Claims 128-129 (canceled)

1 Claim 130 (previously presented): The method of claim 49 wherein the non-
2 metallic material is polystyrene.

1 Claim 131 (previously presented): The method of claim 49 wherein the non-
2 metallic material is polypropylene.

1 Claim 132 (previously presented): The method of claim 49 wherein the non-
2 metallic material is polycarbonate.

1 Claim 133 (previously presented): The method of claim 49 wherein the non-
2 metallic material is nylon.

1 Claim 134 (previously presented): The method of claim 49 wherein the non-
2 metallic material is dextran.

Claims 135-136 (canceled)

1 Claim 137 (previously presented): The system of claim 64 wherein the non-
2 metallic material is polystyrene.

1 Claim 138 (previously presented): The system of claim 64 wherein the non-
2 metallic material is polypropylene.

1 Claim 139 (previously presented): The system of claim 64 wherein the non-
2 metallic material is polycarbonate.

1 Claim 140 (previously presented): The system of claim 64 wherein the non-
2 metallic material is nylon.

1 Claim 141 (previously presented): The system of claim 64 wherein the non-
2 metallic material is dextran.

Claims 142-143 (canceled)

1 Claim 144 (previously presented): The method of claim 86 wherein the non-
2 metallic material is polystyrene.

1 Claim 145 (previously presented): The method of claim 86 wherein the non-
2 metallic material is polypropylene.

1 Claim 146 (previously presented): The method of claim 86 wherein the non-
2 metallic material is polycarbonate.

1 Claim 147 (previously presented): The method of claim 86 wherein the non-
2 metallic material is nylon.

1 Claim 148 (previously presented): The method of claim 86 wherein the non-
2 metallic material is dextran.
